

REMARKS

Please change the Attorney of record and the correspondence address in the present application in accordance with the Revocation of Power of Attorney document submitted herewith.

In response to the Examiner's objection to the drawings, Applicant has submitted formal drawings herewith.

In response to the Examiner's objection to the abstract, Applicant has provided a substitute abstract in the amendment presented herein.

Claims 1-3, 5, and 8-10 stand rejected under 35 U.S.C. §102(e) as being anticipated by Miyata (U.S. Patent No.6,486,447). Claims 11-12 and 18-22 stand rejected under 35 U.S.C. §103 as being unpatentable over Miyata in view of Auding et al. (U.S. Patent No. 4,889,974). Claims 4, 6-7, 13-17 and 23-28 stand rejected under 35 U.S.C. §103 as being unpatentable over Miyata and Auding et al. further in view of Sasaki et al. (U.S. Patent No. 5,493,266). Applicants respectfully assert that these prior art references fail to teach or suggest all of the elements and limitations of the claims.

More specifically, independent claim 1 is directed to a thin film heating element including "a layer of an **electrically conducting metal oxide** on an electrically insulating

substrate, **said metal oxide layer being doped with at least one rare earth element.**"

Advantageously, these materials provide for high power dissipation, rapid response time, and suitability for high temperature and low temperature applications. The Examiner points to Miyata as teaching these features. Applicants respectfully disagree. Miyata describes a process in which a heating element is manufactured from a silicide-forming metal powder and a silicate powder, to form a material which consists of a mixture of a silicide and silicon. In col. 8, lines 15-25, Miyata discloses that rare earth elements can be added to the silicide-forming metal powder to assist in wetting of the resultant film to a ceramic substrate. Thus, in Miyata, the rare earth elements are added to **a silicide-forming metal powder/silicate powder**. In contrast, the thin film heating element of claim 1 includes at least one rare earth element added as a dopant to a **metal oxide layer** as described above. Because Miyata, as well as the other cited prior art references cited by the Examiner, alone or in combination thereof, fail to teach or suggest essential elements of claim 1, Applicants respectfully assert that claim 1 is patentable over these references and the rejection of the claim 1 is hereby traversed.

Dependent claims 2-18 are patentable over the cited references for those reasons advanced above with respect to claim 1 from which they respectively depend and for reciting additional features that are neither taught nor suggested by the cited references. For example, claim 6 recites that the metal oxide layer includes "substantially equal quantities of donor and acceptor elements." Claim 11 recites that the metal oxide layer "is deposited on said substrate by pyrolysis of an organometallic base solution containing said at least one rare earth element." Claim 12 recites that the "rare earth element is

present in said solution at a concentration up to 5 mol %." Nowhere does the cited prior art references teach or suggest this feature. Thus, Applicant respectfully asserts that dependent claims 2-18 are patentable over the cited prior art.

Similar arguments apply to corresponding method claims 19 through 29.

In light of all of the above, it is submitted that the claims are in order for allowance, and prompt allowance is earnestly requested. Should any issues remain outstanding, the Examiner is invited to call the undersigned attorney of record so that the case may proceed expeditiously to allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jay P. Sbrrollini". The signature is fluid and cursive, with the first name "Jay" and last name "Sbrrollini" clearly distinguishable.

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